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EXAMINER

DAVIS, MARY ALICE

ART UNIT	PAPER NUMBER
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3748

NOTIFICATION DATE	DELIVERY MODE
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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/594,434	Applicant(s) YANO ET AL.	
	Examiner MARY A. DAVIS	Art Unit 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/26/06; 7/30/07</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claim 3 is objected to because of the following informalities: "hosing" is misspelled on line 4 and should be - - housing - - .

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 3 recites the limitation to "a main shaft bearing of said upper fixed scroll", "a main shaft bearing of said orbiting scroll, and "a main shaft bearing of said lower fixed scroll". Using "a main shaft bearing" for different bearings including an upper fixed scroll, an orbiting scroll, and the lower fixed scroll is confusing to understand exactly which bearing the applicant is referring to. The Examiner recommends using - - upper fixed scroll main shaft bearing - - , - - orbiting scroll main shaft bearing - - , and - - lower fixed scroll main shaft bearing - - .
4. Claims 6 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 6 and 17 recite the limitation to "in vicinity". "In vicinity" is indefinite since it is unclear what the applicant means by "in the vicinity". Is "in the vicinity" a few inches or a few feet?

5. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7 recites "seal means is provided at said orbiting scroll for sealing compression chambers formed between said orbiting scroll and said fixed scrolls from an orbiting bearing provided at a main shaft side of said orbiting scroll and main shaft bearings provided between said fixed scrolls and said main shaft". It is not clear on if the sealing means includes "main shaft bearings provided between said fixed scrolls and said main shaft", or if the applicant is further limiting the location of the bearings. What sealing means is the applicant trying to limit?

6. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 12 recites the limitation to "uses a suction gas for performing low compression ratio operation". What does the applicant consider a low compression ratio to be? A low compression ratio operation is indefinite since it is not clear what compression ratio the applicant considers to be "low".

7. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 14 recites the limitation to "said core part of said orbiting scroll is formed in a shape to make a top clearance volume at minimum". It is not clear on what the applicant is trying to limit by "formed in a shape to make a top clearance volume at minimum". What shape makes the top clearance volume at a minimum?

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8. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 15 recites the limitation to “communicate with each other in a final compression step to be shifted to a discharge step” is not clear on what the applicant means by this limitation. Is the final compression step a structural step or the location where the last compression chamber is at? What does the applicant mean by “a discharge step” in an apparatus claim, since it appears to be trying to limit a method step?

9. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 18 recites a limitation to “a communicating port”. Claim 17 also recites a limitation to “a communication port” which is double inclusion with claim 18/17/16/8/7/1. It is unclear if the “communicating port” recited in claim 18 is the same passage being disclosed in claim 17.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 9-12, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by TAKAO ET AL ‘671 (Japanese Patent Publication JP 08-326671), as currently understood by the Examiner.

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Regarding claim 1, TAKAO ET AL '671 discloses:

- A scroll compressor comprising:
- a compression section (4, 5, 6) provided in a closed container (1), said compression section including
- an orbiting scroll (6) having volute teeth (6a) (see Figures 8-14) formed substantially symmetrically on both surfaces of an orbiting base plate (see Figures 8-14) and a main shaft (8) being penetrated through and fixed at a center portion (6b) of said orbiting scroll (see Figures 8-14) and
- a pair of fixed scrolls (4, 5) opposed to said both surfaces of said orbiting scroll (see Figures 1 and 6-16), each of said fixed scrolls having a volute tooth (4a, 5a) corresponding to each of said volute teeth of said orbiting scroll (see Figures 8-14) to respectively form compression chambers (16, 17);
- a motor (7a, 7b) provided in said closed container for driving said main shaft (Page 4, ¶0014);
- a suction pipe (9) provided to said closed container for introducing a suction gas into said closed container and for causing said suction gas to be sucked into said compression section after cooling said motor (see Figures 8-14, and ABSTRACT) (“for introducing a suction gas into said closed container and for causing said suction gas to be sucked into said compression section after cooling said motor” is considered functional language. The use of the functional language only requires that the apparatus is capable of performing the function, and does not add any specific structural limitations to the apparatus. Since the

suction gas after entering the closed container is capable of cooling the motor, the prior art meets the functional limitation. Furthermore, "apparatus claims cover what a device *is*, not what a device *does*." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). (See MPEP 2114)); and

- a discharge pipe (10) provided to said closed container for discharging said suction gas compressed by said compression section (see Figures 8-14 and ABSTRACT).

Regarding claim 9, TAKAO ET AL '671 further discloses the following limitations not already discussed above in claim 1:

- wherein each of said orbiting scrolls and fixed scrolls has more than two turns of volute tooth formed toward the periphery of said main shaft (see Figures 3-5).

Regarding claim 10, TAKAO ET AL '671 discloses:

- said orbiting scroll is composed of a core part (near (6b) of Figure 3) and an volute part (6a), wherein said core part has a orbiting bearing (6b) in a center portion thereof and is formed in a curved shape such as an arc (see Figure 3), and said volute part is formed at periphery of said core part and has a continuous volute teeth formed in a volute curve in substantially the same height as said core part (see Figures 3 and 8-14).

Regarding claim 11, TAKAO ET AL '671 discloses:

- said fixed scroll has a recess in a center portion and an volute tooth formed on the outer periphery of said recess, said recess accommodating said core part of

said orbiting scroll, said volute tooth, being in the same size as said volute tooth of said orbiting scroll formed in an volute curve, being rotated 180 degrees in phase (see Figures 3-5 and 8-14).

Regarding claim 12, TAKAO ET AL '671 discloses:

- said scroll compressor uses a suction gas for performing low compression ratio operation (see ABSTRACT).

Regarding claim 15, TAKAO ET AL '671 discloses:

- a pair of said compression chambers are formed by combination of said orbiting scroll and said fixed scroll (see Figures 3-5 and 8-14), and a relief portion (6g, 6i, connected via (6h)), for causing said pair of compression chambers to communicate with each other in a final compression step to be shifted to a discharge step, is provided in said core part of said orbiting scroll (see Figures 3 and 8-14).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. *Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over TAKAO ET AL '671 in view of SUEFUJI ET AL (Japanese Patent Publication No. JP 08-170592).*

Regarding claim 2, TAKAO ET AL '671 discloses:

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- said closed container is vertically disposed (see Figures 9-10 and 12-14),
- a lubricating oil storage chamber (22) is formed in said closed container below said compression section (see Figures 9-10 and 12-14), and
- an oil feed pump (31-38) for sucking up lubricating oil from said lubricating oil storage chamber is disposed at a lower end of said main shaft (Page 7, ¶0024) (see Figures 9-10 and 12-14).

Regarding claim 6, TAKAO ET AL '671 discloses:

- said suction pipe is provided to said closed container in a vicinity of said compression section (see Figures 8-14).

However, TAKAO ET AL '671 fails to disclose the compression section being disposed in the lower portion of the closed container and the motor being disposed at the upper portion of the closed container.

Regarding claim 2, SUEFUJI ET AL teaches:

- said compression section (210, 300, 220; 210, 220, 320a,b) is disposed at a lower portion in said closed container (100) (see Figures 1, 4, 5, and 8),
- said motor (700) is disposed at an upper portion in said closed container (see Figures 1, 4, 5, and 8),
- a lubricating oil storage chamber (800) is formed in said closed container below said compression section (see Figures 1, 4, 5, and 8).

Regarding claim 6, SUEFUJI ET AL teaches:

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- a glass terminal is provided at an upper end portion of said closed container (see Figure 1, which shows that the upper end portion of the closed container has a glass terminal).

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have the compression section at the lower portion of the closed container with the motor located at the upper portion of the closed container in the compressor of TAKAO ET AL '671, since it is well known in the art to have the compression chamber at the lower portion of the closed container and the motor in the upper portion of the closed container, as evidence by SUEFUJI ET AL. Furthermore, it would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have the compression chamber in the lower portion of the closed container and the motor in the upper portion of the closed container in the compressor of TAKAO ET AL '671, since it would require routine skill in the art to combine known prior art elements to produce predictable results.

14. Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over TAKAO ET AL '671 in view of SUEFUJI ET AL.

Regarding claim 3, TAKAO ET AL '671 discloses:

- said suction pipe is provided at said motor hosing part (see Figures 9-10 and 12-13),
- said discharge pipe is provided at said compression section (Figures 9-10 and 12-13), and

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- an oil feed path is formed, said oil feed path communicating from said oil feed pump (Figures 9-10 and 12-13), running through inside of said main shaft (23) (Figures 9-10 and 12-13), opening at a main shaft bearing (2a) (oil feed path is (27)) of said upper bearing (see Figures 9-10 and 12-13), passing through a main shaft bearing (6b)(oil feed path is from (26)) of said orbiting scroll (see Figures 9-10 and 12-13), passing through a main shaft bearing (3a) (oil feed path of (25)) of said lower bearing and reaching said lubricating oil storage chamber (return oil path is via (30) to the lubricating oil storage chamber) (see Figures 9-10 and 12-13) (the oil feed path disclosed in the limitation is not construed to occur sequentially).

Regarding claim 5, TAKAO ET AL '671 discloses:

- a suction port (45), for communicating between said motor housing part and said compression chamber (see Figures 9-10 and 12-13)), is provided at an outer peripheral portion of said lower fixed scroll of said compression section (see Figures 9-10 and 12-13, which shows the suction port is located at the outer peripheral portion of the lower fixed scroll of said compression section).

However, TAKAO ET AL '671 fails to disclose the closed container being partitioned by said compression section into a motor housing part and a lubricating oil storage chamber and the oil feed path including an oil feed path in the upper fixed scroll and the lower fixed scroll.

Regarding claim 3, SUEFUJI ET AL teaches:

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- said closed container (100) is partitioned by said compression section (210, 300, 220; 210, 220, 320a,b) into a motor housing part (700) and the lubricating oil storage chamber (800) (see Figures 1, 4, 5, and 8),
- an oil feed path is formed, running through inside of said main shaft (500) (see Figures 1, 4, 5, and 8), opening at a main shaft bearing (222) (oil feed path is (532)) of said upper fixed scroll (see Figure 8), passing through a main shaft bearing (330)(oil feed path is from (522)) of said orbiting scroll (see Figure 8), passing through a main shaft bearing (212) (oil feed path of (512)) of said lower fixed scroll (the oil feed path disclosed in the limitation is not construed to occur sequentially).

Regarding claim 5, SUEFUJI ET AL teaches:

- a suction port (45), for communicating between said motor housing part and said compression chamber (see Figures 9-10 and 12-13), is provided at an outer peripheral portion of said upper fixed scroll of said compression section (It would be obvious to one having ordinary skill in the art at the time of the invention to have the suction port provided at the upper fixed scroll of the modified compressor of TAKAO '671, since when the motor is located above the compression chamber, the suction pipe would obviously enter the closed container in the motor housing part at the upper portion, in order to cool the motor, and therefore, the suction pipe would be at the upper fixed scroll (and not the lower fixed scroll)).

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have the closed container being partitioned by said compression section into a motor housing part and a lubricating oil storage chamber in the compressor of TAKAO ET AL '671, since it is well known in the art to have the compression chamber at the lower portion of the closed container and the motor in the upper portion of the closed container, as evidence by SUEFUJI ET AL.

TAKAO ET AL '671 utilizes a separate upper and lower bearing components from the upper and lower fixed scroll, while SUEFUJI ET AL teaches the upper bearing component integrated with the upper fixed scroll and the lower bearing component integrated with the lower fixed scroll. TAKAO ET AL '671 discloses an oil pathway to the upper and lower bearing components, and SUEFUJI ET AL teaches upper and lower bearing components in the upper and lower fixed scrolls. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have an oil feed path in the upper fixed scroll and the lower fixed scroll in the compressor of TAKAO ET AL '671, since it would require routine skill in the art to combine known prior art elements to produce predictable results.

15. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over modified compressor of TAKAO ET AL '671 as applied to claim 3 above, and further in view of either one of SUZUKI ET AL (Japanese Patent Publication No. JP 61-268880) or HARA ET AL (Japanese Patent Publication No. JP 05-180181).

The modified compressor of TAKAO ET AL '671 discloses the claimed invention including a passage (30) and the holes seen in Figures 9-10 and 12-13 located in the

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frame (11)) is provided for communicating between said motor housing part and said lubricating oil storage chamber (see Figures 9-10 and 12-13), however, fails to disclose a check valve.

Regarding claim 4, SUZUKI ET AL and HARA ET AL teaches:

- a check valve ((31) of SUZUKI ET AL; (25, 27) of HARA ET AL), for preventing backflow of said lubricating oil (“for preventing backflow of said lubricating oil” is considered functional language. The use of the functional language only requires that the apparatus to be capable of performing the function, and does not add any specific structural limitations to the apparatus. Since the check valve is capable of preventing the backflow of lubricating oil, the prior art meets the functional limitation. Furthermore, “apparatus claims cover what a device *is*, not what a device *does*.” *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). (See MPEP 2114)), is provided at an opening of said passage at said lubricating oil storage chamber (see Figures 1-2 and 5 of SUZUKI ET AL; see Figures 1-2 of HARA ET AL).

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have a check valve in the passage to the lubricating oil storage chamber of the modified compressor of TAKAO ET AL '671, in order to maintain a proper amount of oil in the lubricating oil chamber. By preventing oil from flowing out thru the divider plate and remaining in the lubricating oil chamber, the shaft is able to maintain some oil in the shaft when the compressor is shut down, and therefore, aids in lubrication at compressor start up.

16. Claims 7-8 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over TAKAO ET AL '671 in view of SUEFUJI ET AL.

Regarding claim 7, TAKAO ET AL '671 discloses:

- seal means (43, 44) is provided at said orbiting scroll for sealing compression chambers formed between said orbiting scroll and said fixed scrolls from an orbiting bearing (6b) provided at a main shaft side of said orbiting scroll (see Figures 8-14 that shows the seal means located on the fixed scrolls for providing the sealing means).

TAKAO ET AL '671 discloses:

- said seal means is provided at a core part (see Figures 8-14) of said fixed scrolls at surfaces thereof facing to said orbiting scrolls (see Figures 8-14).

Regarding claim 16, TAKAO ET AL '671 discloses:

- a discharge port (4c) of a compressed gas is provided in a center portion of said fixed scroll (see Figure 5 and 8-14) at a spot which is not across said seal means (see Figures 8-14).

Regarding claim 17, TAKAO ET AL '671 discloses:

- said discharge port (4c) is provided at only one of the fixed scrolls (see Figures 5 and 8-14), and a communication port (6h) is provided penetrating through the orbiting base plate (see Figure 3) in the vicinity of said core part of said orbiting scroll (see Figure 3) and outside said seal means, and said communication port is not across said compression chamber and always communicates with said discharge port (see Figures 3 and 8-14).

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Regarding claim 18, TAKAO ET AL '671 discloses:

- said discharge port and communication port are formed respectively as a long hole or by a plurality of holes adjacent to each other (see Figures 3, 5, and 8-14, which shows that the discharge port and communication ports are formed as a long hole).

However, TAKAO ET AL '671 fails to disclose main shaft bearings provided between the fixed scrolls and the main shaft and the seal means located on the orbiting scroll.

SUEFUJI ET AL teaches:

- a main shaft (500) (see Figures 1, 4, 5, and 8), a main shaft bearing (222) of said upper fixed scroll (see Figure 8), a main shaft bearing (330) of said orbiting scroll (see Figure 8), a main shaft bearing (212) of said lower fixed scroll.

TAKAO ET AL '671 utilizes a separate upper and lower bearing components from the upper and lower fixed scroll, while SUEFUJI ET AL teaches the upper bearing component integrated with the upper fixed scroll and the lower bearing component integrated with the lower fixed scroll.

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have main shaft bearings between the fixed scrolls and the main shaft of TAKAO ET AL '671, since it would require routine skill in the art to combine known prior art elements to produce predictable results. Furthermore, it would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have the sealing means on the orbiting scroll instead of the fixed scroll of the modified compressor of TAKAO ET AL '671, since it has been held that rearranging

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parts of an invention involves only routine skill in the art, as well as, having the sealing means on the orbiting scroll would produce predictable results.

17. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over TAKAO ET AL '671.

Regarding claim 14, TAKAO ET AL '671 discloses:

- said core part of said orbiting scroll (see Figure 3) is formed in a shape to make a top clearance volume at minimum (see Figures 8-14).
- "(I)s formed in a shape to make a top clearance volume at minimum" is a design resultant variable.

TAKAO ET AL '671 does not specifically disclose that the orbiting scroll is formed in a shape to make a top clearance volume at minimum.

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have the orbiting scroll formed in a shape to make the top clearance volume at minimum in the compressor of TAKAO ET AL '671, in order to reduce the overall height of the compressor. Furthermore, a recitation of the design resultant must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

In TAKAO ET AL '671, the apparatus appears to be capable of minimizing the top clearance volume. Patents are based on the structure of an apparatus and not on what the apparatus does.

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18. Claims 13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over TAKAO ET AL '671 in view of either one of UCHIDA ET AL (U.S. Patent Publication US 2003/0000238) or of INAGAKI ET AL (Japanese Patent Publication JP 2003-021084).

TAKAO ET AL discloses the claimed invention, as discussed above, however, fails to disclose using CO₂ gas as the suction gas.

UCHIDA ET AL teaches the suction gas is a CO₂ gas (Page 1, ¶0007).

INAGAKI ET AL also teaches the suction gas is a CO₂ gas (see ABSTRACT).

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have used CO₂ gas as the suction gas of TAKAO ET AL, since it requires only routine skill in the art to utilize a known refrigerant, such as CO₂, in a scroll compressor, as evidence by UCHIDA ET AL and INAGAKI ET AL.

Communication

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARY A. DAVIS whose telephone number is (571)272-9965. The examiner can normally be reached on Monday thru Thursday; 6:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas E. Denion/
Supervisory Patent Examiner, Art Unit 3748

/Mary A Davis/
Examiner, Art Unit 3748